成都理工大学中英合作办学
CDUT Sino-British Collaborative Education

OXFORD BROOKES UNIVERSITY

# Software Engineering Coursework

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|---|---|
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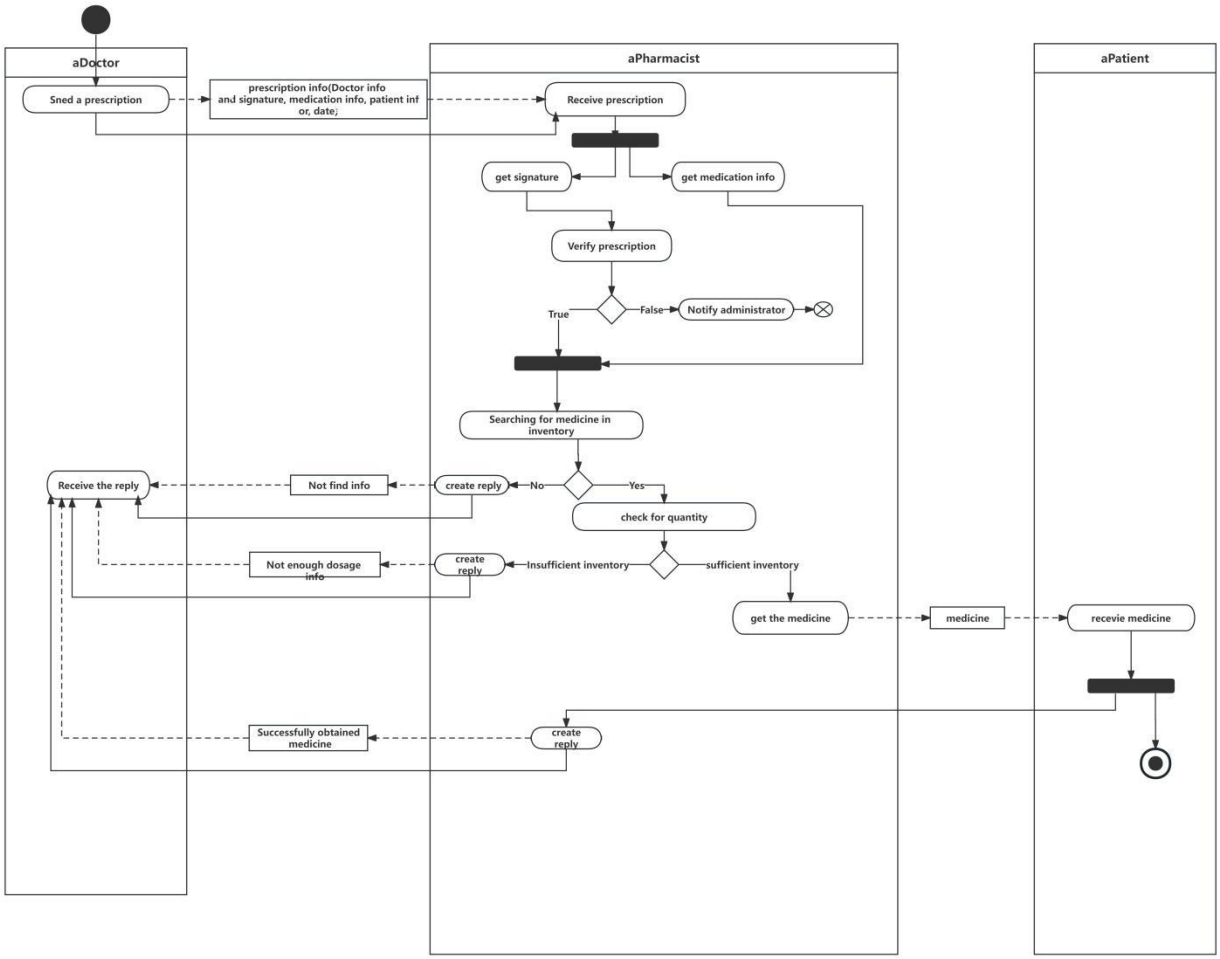
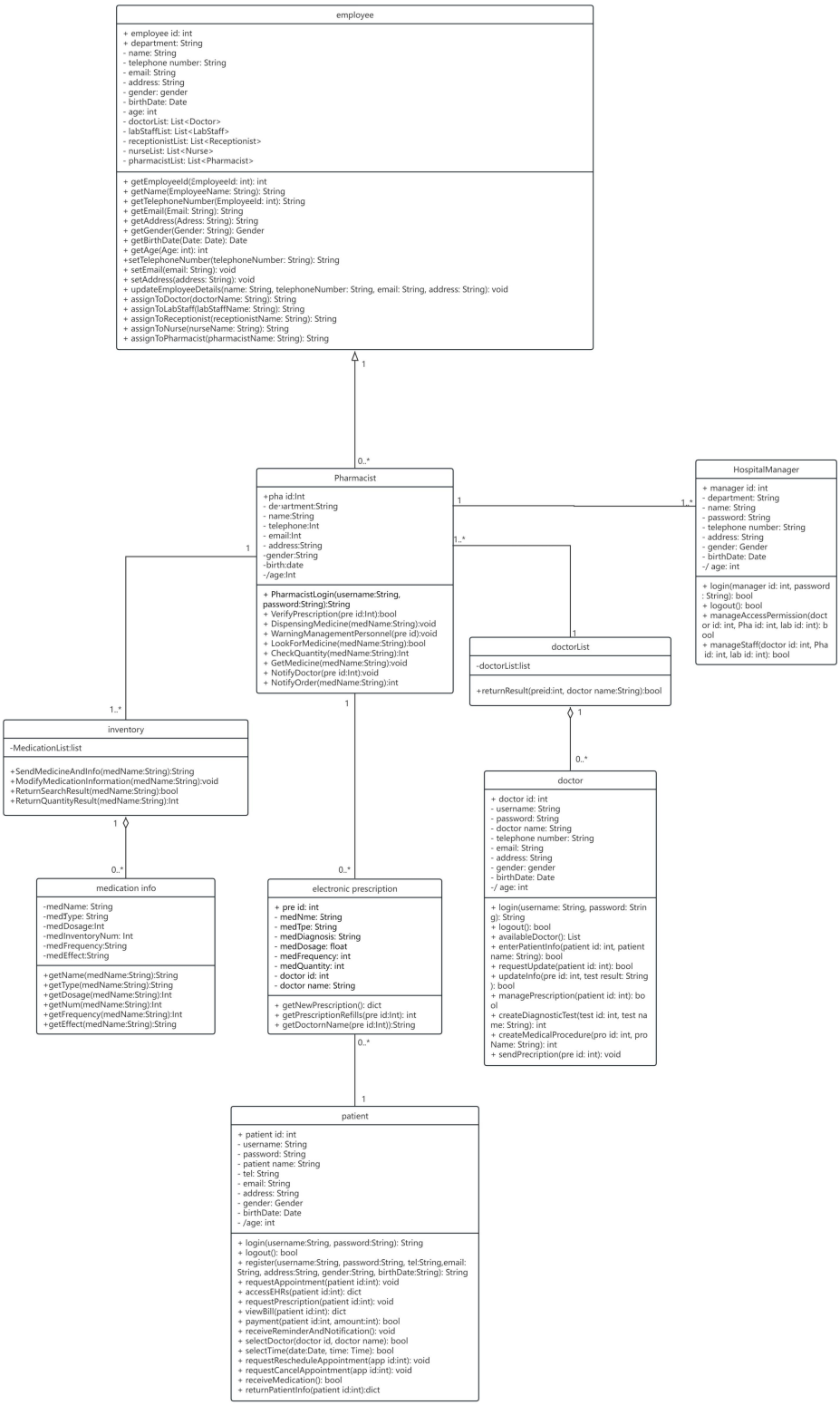
| **Module Code:** | **CHC6173** |
| **Module Name:** | **Software Engineering** |

# 1.Task1(b)-Software Modelling and Specification

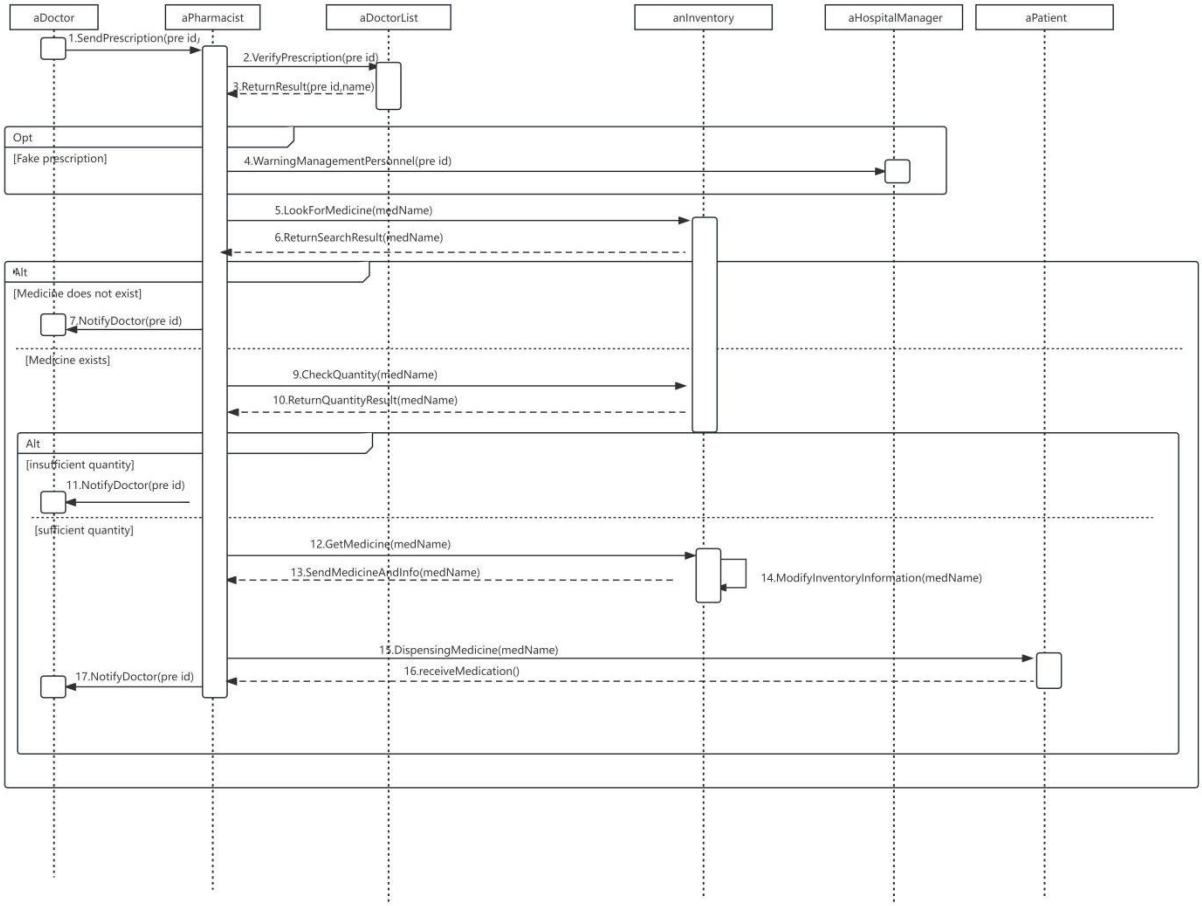
1.1Activity Model



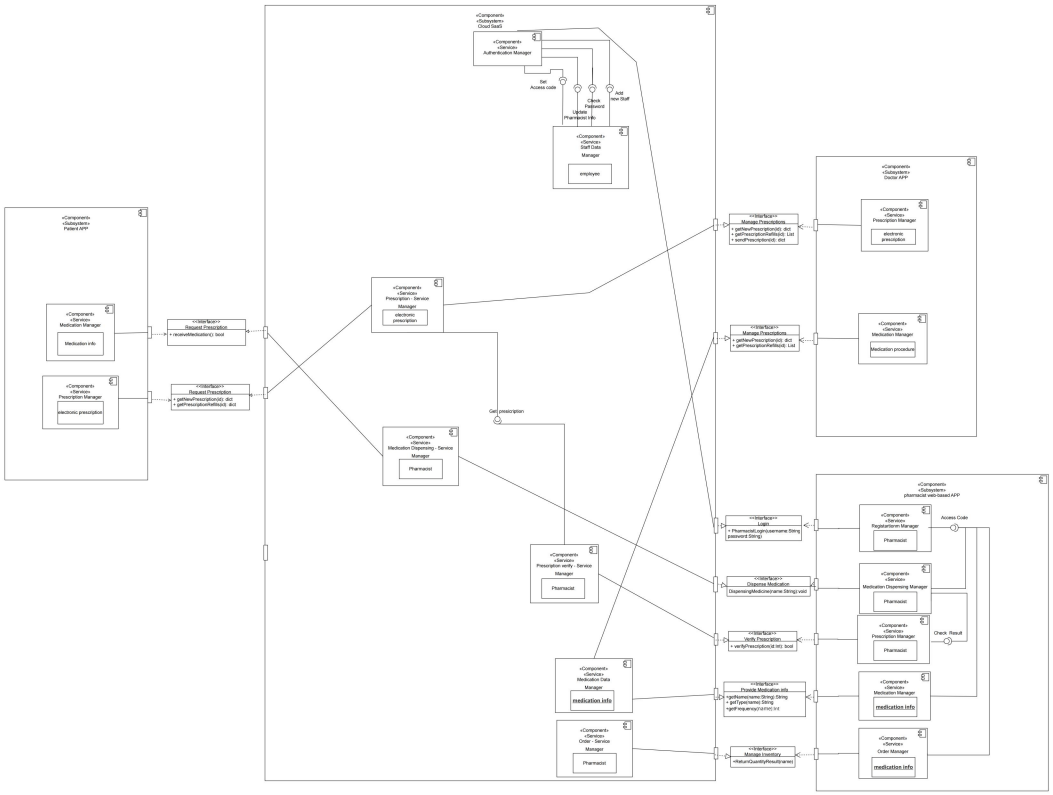
## 1.2Structural Model



## 1.3Behaviour Model



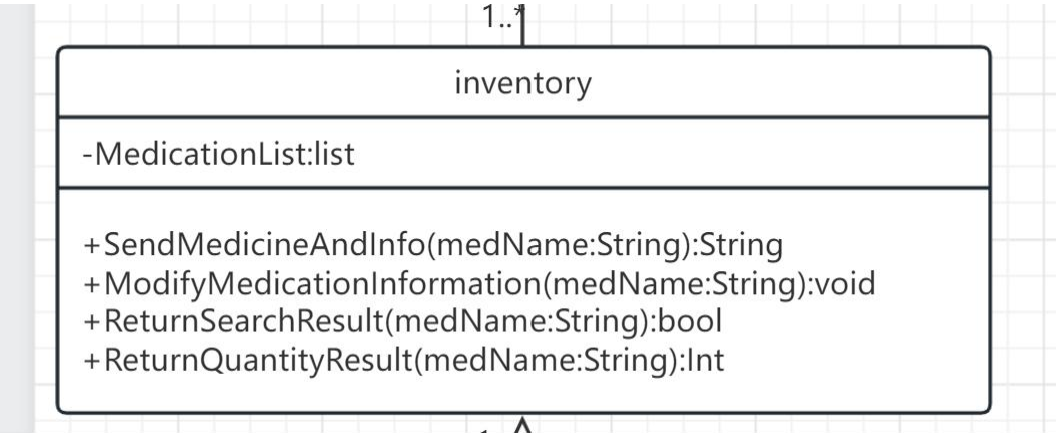
# 2.Task2(b)-Software Architectural Design



# 3.Task 3- Software Testing

3.1 Unit test plan

To test the microservice that provide the inventory class, I design test cases for the inventory class.




Class to test:Inventory

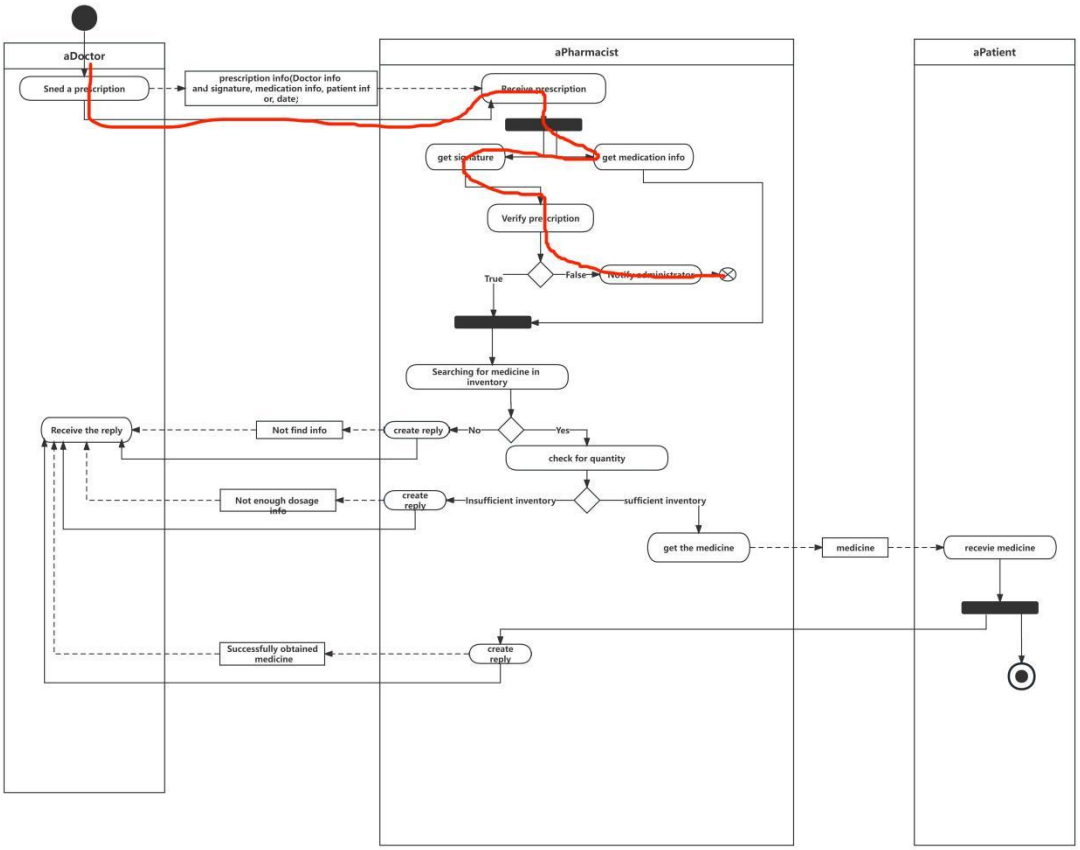
| Test Case | Method and Parameters | Expected output |
|---|---|---|
| Successfully sent medication and its information to patients | SendMedicineAndInfo(Amoxicillin) | Successfully sent message |
| Medication and its information failed to sent to patients | SendMedicineAndInfo(Amoxicillin) | Error message |
| Reduce the quantity of medication in inventory | ModifyMedicationInformation(Amoxicillin) | nothing |
| Add the quantity of medication in inventory | ModifyMedicationInformation(Amoxicillin) | nothing |
| Successfully found the required medication in the inventory | ReturnSearchResult(Amoxicillin) | True |
| Not found the required medication in the inventory | ReturnSearchResult(Amoxicillin) | False |
| Find the quantity of required medication | ReturnQuantityResult(Amoxicillin) | Number of medication |

3.2 System test plan

Use Case: medication dispensing

3.2.1 Scenarios1

Scenario: Problem with prescription verification




| Doctor | pharmacist |
|---|---|
| 1.send a prescription | 2.receive prescription |
| | 3.get signature |
| | 4.get medication info |
| | 5.verify prescription |
| | 6.Notify administrator |

## Derive Test Case from Scenarios:

Test Data

- Input:

  prescription info:doctor signature

- Stored data:

  a.On mobile devise: no data stored

b.On cloud: prescription info

- Output: Exit process

Test Process

1.Set up test context

a.Mobile device: not to contain prescription info;

b.Prescription database: (a) to contain doctor signature (b) to contain the required medication information

2.send prescription

a.Expected output: doctor send prescription to pharmacist

3.receive prescription

a.Expected output: pharmacist receive prescription

4.get signature

a.Expected output: the doctor signature

b.Check: if output match the expected

5.get medication info

a.Expected output: the medication info

b.Check: if output match the expected

6.input signature

7.verify prescription

a.Expected output: “False” of boolean value

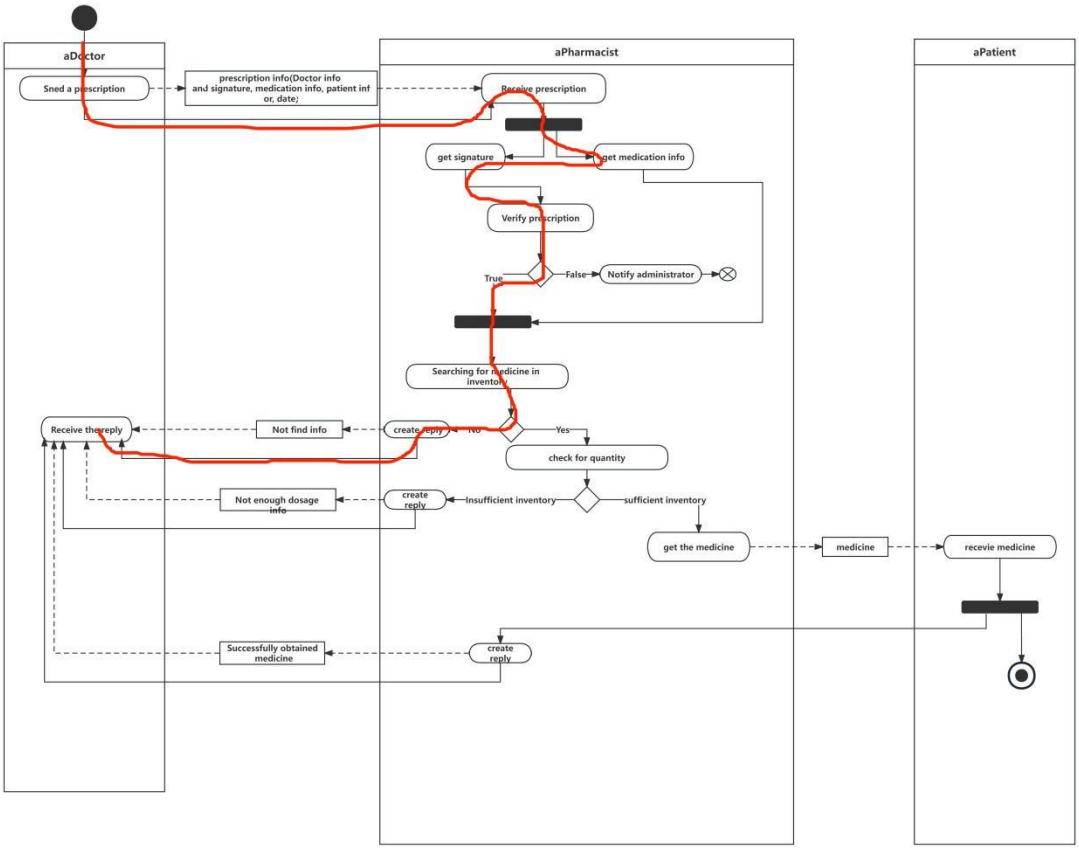
b.Check: if output match the expected

8.Notify administrator

a.Expected output: Notification sent to administrator

3,2,2 Scenarios2

Scenario: inventory don’t have the medication




| Doctor | pharmacist |
|---|---|
| 1.send a prescription | 2.receive prescription |
| | 3.get signature |
| | 4.get medication info |
| | 5.verify prescription |
| | 6.Searching for medicine in inventory |
| | 7.create reply |
| 8.receive the reply | |

## Derive Test Case from Scenarios:

Test Data

- Input:

prescription info: the doctor signature, the required medication information

Inventory:the information about current inventory of the medication

- Stored data:

  a.On mobile devise: no data stored

  b.On cloud: prescription info, inventory list

- Output: a reply to doctor

Test Process

1.Set up test context

a.Mobile device: not to contain prescription info;

b.Prescription database: (a) to contain doctor signature (b) to contain the medication information

C.inventory database: to contain the medication information in the current inventory

2.send prescription

a.Expected output:doctor send prescription to pharmacist

3.receive prescription

a.Expected output: pharmacist receive prescription

4.get signature

a.Expected output: the doctor signature

b.Check: if output match the expected

5.get medication info

a.Expected output: the medication info

b.Check: if output match the expected

6.input signature and medication info

7.verify prescription

a.Expected output: “True” of boolean value

b.Check: if output match the expected

8.Look for Medicine

a.Expected output: “False”of boolean value

b.Check: if output match the expected.

9.create reply

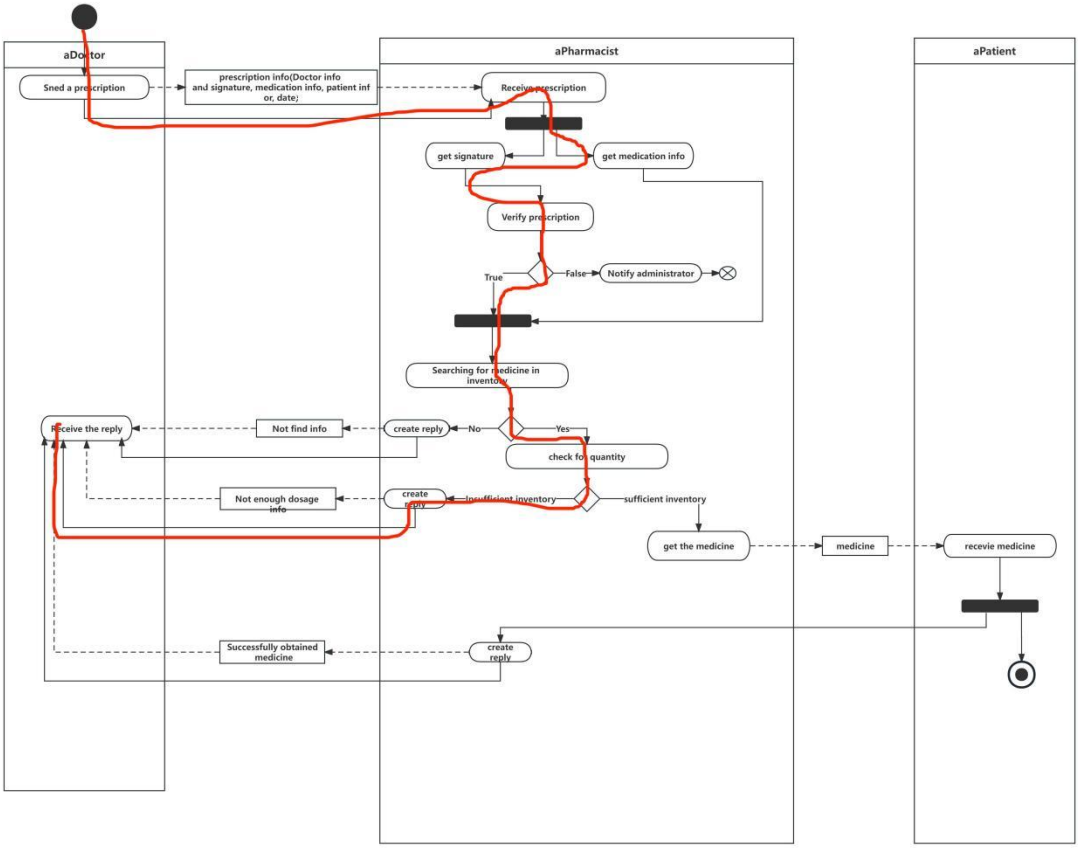
a.Expected output: a reply to create

10.receive the reply

a.Expected output:doctor receive a reply

3.2.3Scenarios3

Scenario: inventory don't have enough dosage of the medication.




| Doctor | pharmacist |
|---|---|
| 1.send a prescription | 2.receive prescription |
| | 3.get signature |
| | 4.get medication info |
| | 5.verify prescription |
| | 6.Searching for medicine in inventory |

| | |
|---|---|
| | 8.check for quantity |
| | 9.create reply |
| 10.receive the reply | |

## Derive Test Case from Scenarios:

Test Data

- Input:

  prescription info: the doctor signature, the required medication information

  Inventory:the information about current inventory of the medication

- Stored data:

  a.On mobile devise: no data stored

  b.On cloud: prescription info, inventory list

- Output: an reply to doctor

Test Process

1.Set up test context

  a.Mobile device: not to contain prescription info;

  b.Prescription database: (a) to contain doctor signature (b) to contain the medication information

  C.inventory database: to contain the medication info in the current inventory

2.send prescription

  a.Expected output: doctor send prescription to pharmacist

3.receive prescription

  a.Expected output: pharmacist  receive prescription

4.get signature

  a.Expected output: the doctor signature

  b.Check: if output match the expected

5.get medication info

  a.Expected output: the medication info

  b.Check: if output match the expected

6.input signature and medication info

7.verify prescription

a.Expected output: “True” of boolean value

b.Check: if output match the expected

8.Look for Medicine

a.Expected output: “True” of boolean value

b.Check: if output match the expected.

9.check for quantity

a.Expected output: “False” of boolean value

b.Check: if output match the expected.

10.create reply

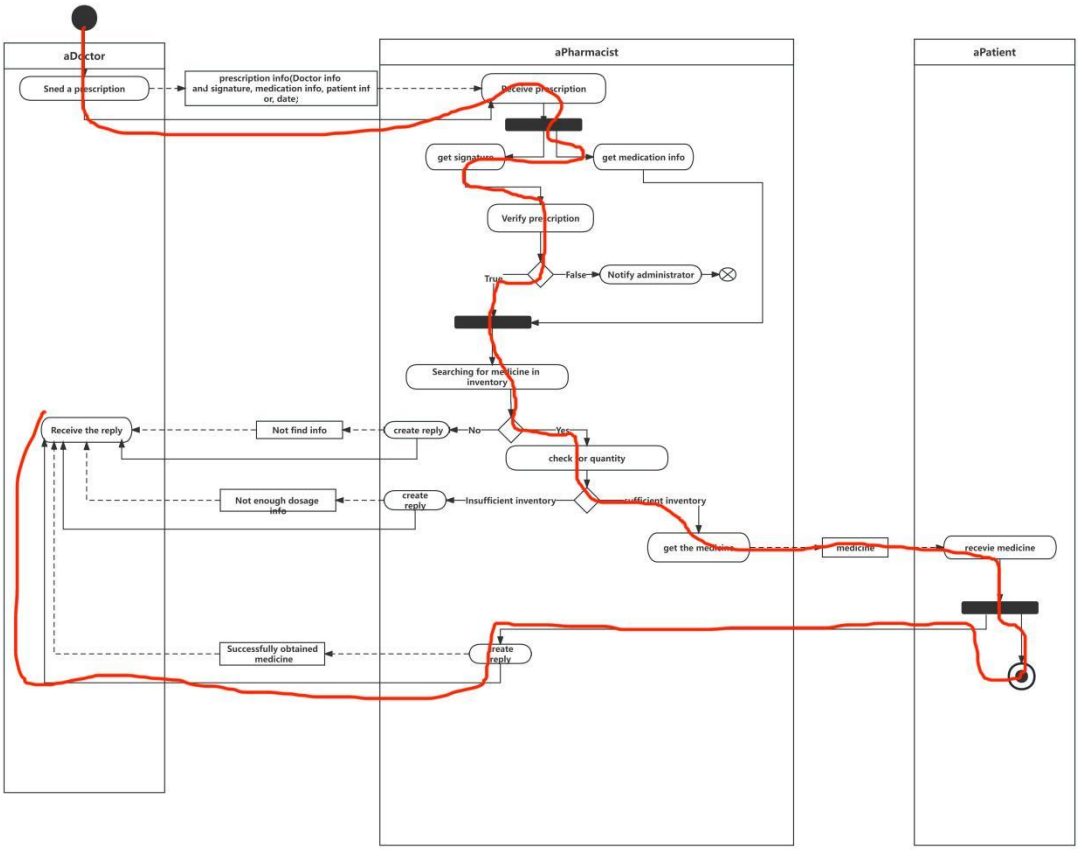
a.Expected output: a reply to create

11.receive the reply

a.Expected output: doctor receive a reply

3.2.4 Scenarios4

Scenario:Successful medication dispensing




| Doctor | pharmacist | patient |
|---|---|---|
| 1.send a prescription | 2.receive prescription | |
| | 3.get signature | |
| | 4.get medication info | |
| | 5.verify prescription | |
| | 6.Searching for medicine in inventory | |
| | 8.check for quantity | |
| | 9.get the medicine | |
| 11.receive the reply | | 10.receive the medicine |

## Derive Test Case from Scenarios:

Test Data

- Input:

prescription info: the doctor signature, the required medication information

Inventory:the information about current inventory of the medication

- Stored data:

  a.On mobile devise: no data stored

  b.On cloud: prescription info, inventory list

- Output: the patient receive the medicine

Test Process

1.Set up test context

  a.Mobile device: not to contain prescription info;

  b.Prescription database: (a) to contain doctor signature (b) to contain the medication information

  c.inventory database: to contain the medication info in the current inventory

2.send prescription

  a.Expected output: doctor send prescription to pharmacist

3.receive prescription

  a.Expected output: pharmacist  receive prescription

4.get signature

  a.Expected output: the doctor signature

  b.Check: if output match the expected

5.get medication info

  a.Expected output: the medication info

  b.Check: if output match the expected

6.input signature and medication info

7.verify prescription

  a.Expected output: “True” of boolean value

  b.Check: if output match the expected

8.Look for medicine

  a.Expected output: “True” of boolean value

  b.Check: if output match the expected.

9.check for quantity

a.Expected output: “True” of boolean value

b.Check: if output match the expected.

10.get the medication

a.Expected output: pharmacist get the medication

11.receive the medicine

a.Expected output: the patient get the medication

12.create reply

a.Expected output: a reply to create

13.receive the reply

a.Expected output:doctor receive a reply